

Date: Thursday, 3/13/2008 1:01:34 PM  
 User: Kim Johnston

## Process Sheet

13

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 206L AFT X-TUBE  
 Job Number : 37986  
 Estimate Number : 13222  
 P.O. Number :  
 This Issue : 3/13/2008 S.O. No. :  
 Prsht Rev. : NC Part Number : D206667203TRN  
 First Issue : 1/1 Type : LANDING GEAR Drawing Number : D206-667-243 REVB  
 Previous Run : Project Number : N/A  
 Material : B  
 Due Date : 3/28/2008 Qty: 1 Um: Each  
 Written By :  
 Checked & Approved By : 08 03 13  
 Comment : Est Rev:A 08-03-06 new issue DD verified by:ec

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description:

1.0 D6004115 Crosstube material



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D6004-115 Crosstube B 34685

Check OD = 2.500"; ID = 1.800"

A.M. 08.04.02 (2)

2.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA089

2-Turn first side as per Folio FA089

3- File transition lines smooth

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-243.

A.M. 08.04.02 (1)

3.0 QC1 INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

A.M. 08.04.02 (1)

4.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA089

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-243.

2- File transition lines smooth

3-Remove sand and plugs

A.M. 08.04.02 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/13/2008 1:01:35 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L AFT X-TUBE

Job Number: 37986

Part Number: D206667203TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

4-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243  
Inside of Cuff(Donot engrave on outside of tube)

Am 08.04.02

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

Am 08.04.02

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

J.F. 08/04/02

7.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

3L 08.04.02

N/A

1-Polish entire outside surface of crosstube

8.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

RT 08-04-02

9.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DP 8-4-2

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock in kanban rack

Location: crosstube cell for banding

RT 08-04-02

11.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/04/03

Job Completion



u 08.04.03

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b> 37986
<b>Description:</b> Crosstube Assembly	<b>Part Number:</b> D206-667-243
<b>Inspection Dwg:</b> D206-667-243 <b>Rev:</b> B	<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.492	✓		
	2.018	+0.005/-0.000	2.021	✓		
	2.079	+0.005/-0.000	2.083	✓		
	2.145	+0.005/-0.000	2.150	✓		
	2.209	+0.005/-0.000	2.213	✓		
	2.287	+0.005/-0.000	2.289	✓		
	2.363	+0.005/-0.000	2.363	✓		
	2.433	+0.005/-0.000	2.435	✓		
	0.200	+/-0.010	0.200	✓		
	0.500 x 30°	+/-0.010	0.500x30°			
	R0.063	+/-0.010	R0.063			
	R0.500	+/-0.010	R0.500			
	4.438	+/-0.030	4.438	✓		
SIDE B	104.91	+/-0.020	104.930	✓		
	2.490	+0.005/-0.000	2.492	✓		
	2.018	+0.005/-0.000	2.022	✓		
	2.079	+0.005/-0.000	2.083	✓		
	2.145	+0.005/-0.000	2.148	✓		
	2.209	+0.005/-0.000	2.213	✓		
	2.287	+0.005/-0.000	2.290	✓		
	2.363	+0.005/-0.000	2.364	✓		
	2.433	+0.005/-0.000	2.435	✓		
	0.200	+/-0.010	0.200	✓		
	0.500 x 30°	+/-0.010	0.500x30°	✓		
	R0.063	+/-0.010	R0.063	✓		
	R0.500	+/-0.010	R0.500	✓		
	4.438	+/-0.030	4.438	✓		

<b>Measured by:</b> A.M.	<b>Audited by:</b> J.F.	<b>Prototype Approval:</b> N/A
<b>Date:</b> 08.04.02	<b>Date:</b> 08/04/02	<b>Date:</b> N/A

Rev	Date	Change	Revised by	Approved
A	06.09.01	New Issue (P/O D206-667-203)	KJ/JLM	



DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED # DS	APPROVED # DS	DRAWING NO. D206-667-243	REV. B SHEET 1 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (206L HIGH AFT)	SCALE NTS
A	00.11.17	NEW ISSUE	
B	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	

RELEASED  
05-07-26 #

UNDER REVIEW

06-08-10 RH

12 draw detail F

RH

07.05.02

Qty	Part Number	Description
X	D206-667-243	CROSSTUBE ASSEMBLY
1	D6004-115	CROSSTUBE
2	D2856-400-773	ABRASION STRIP
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
2	D2892-1	SUPPORT
14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
4	MS21920-22	CLAMP

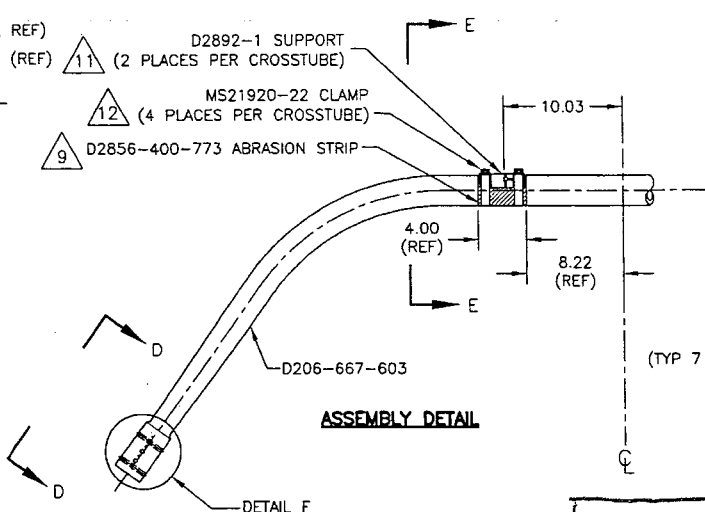
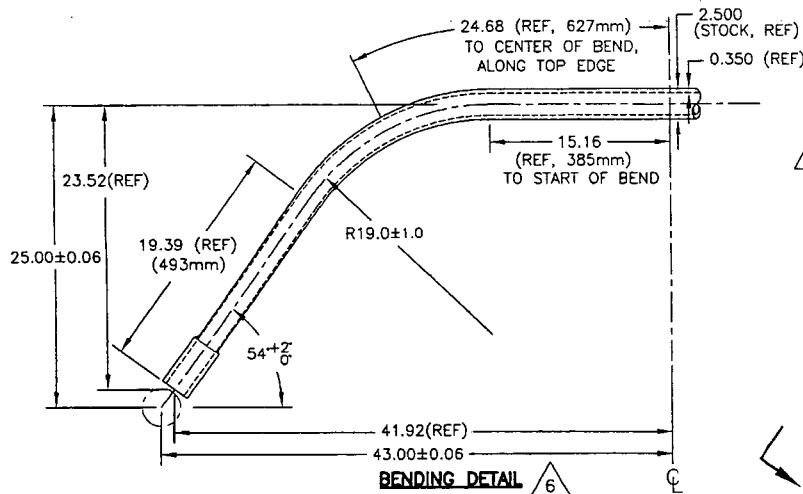
#### GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6004-115  
FINISHED LENGTH =  $104.91 \pm 0.020$
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2892-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) IT IS OPTIONAL TO SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

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△ B  $\phi 0.323^{+0.005}_{-0.000}$   
(TYP 5 PLACES PER CUFF)  
HOLE TO BE ALIGNED WITHIN  $\pm 0.001$   
OF HOLE ON OTHER SIDE OF CUFF

PILOT  $\phi 0.128$   
C'SINK  $\phi 0.225 \times 100'$   
(TYP 7 PLACES PER CUFF)

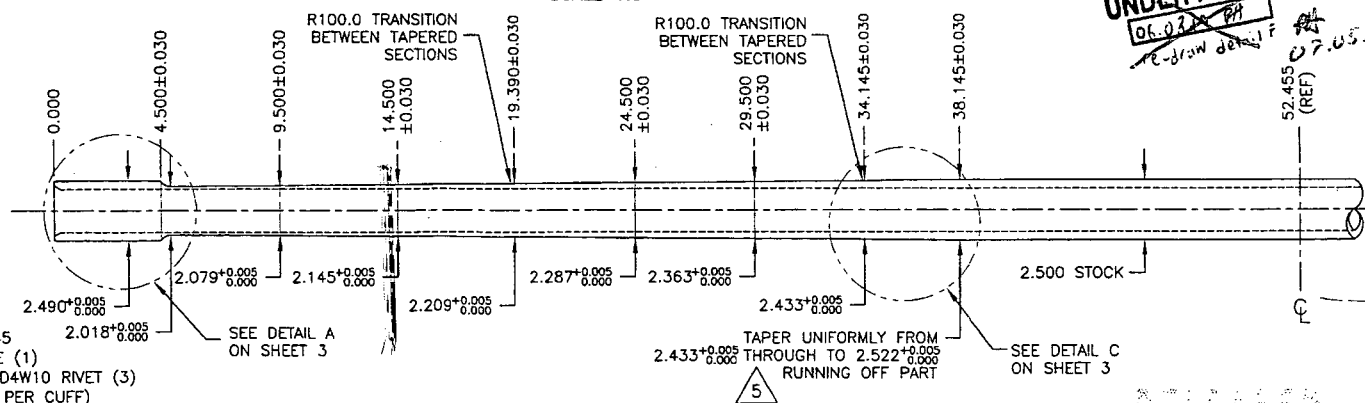
FWD SIDE ONLY

DETAIL F  
SCALE 2:5

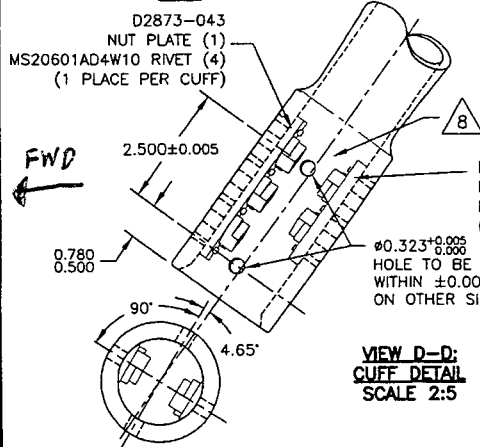
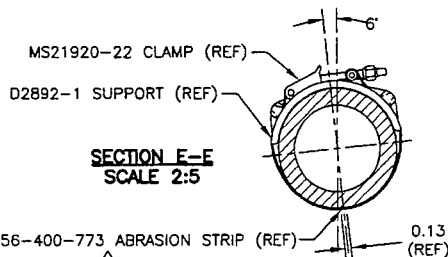
**UNDER REVIEW**  
05.07.26 PH  
re-draw detail F

FWD SIDE ONLY

**TURNING DETAIL**  
SCALE 1:5



**SECTION E-E**  
SCALE 2:5

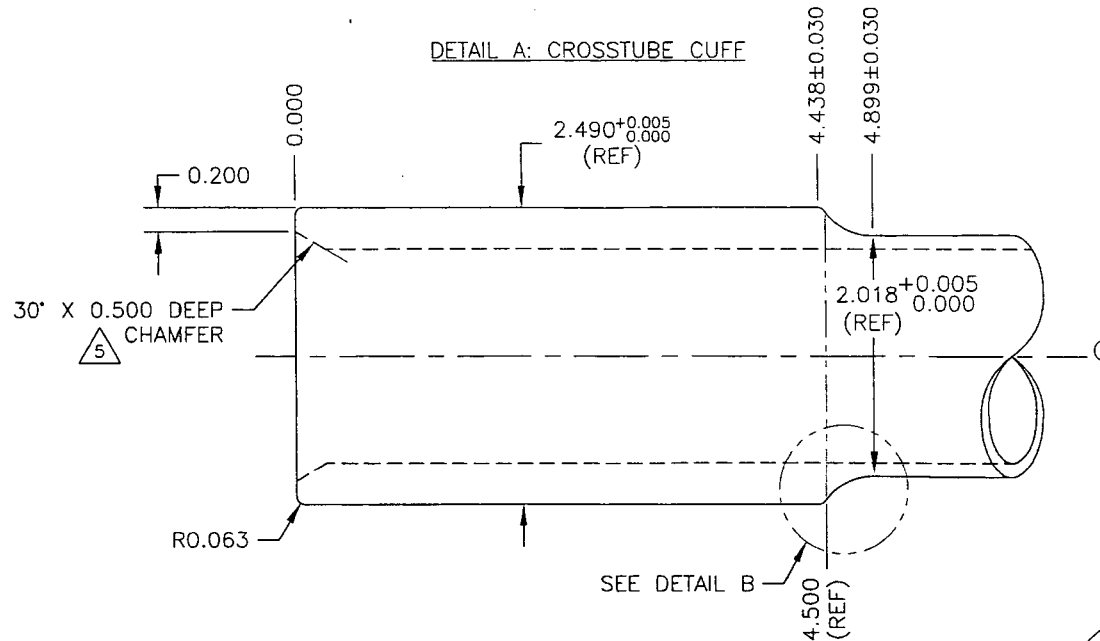


**VIEW D-D:**  
**CUFF DETAIL**  
SCALE 2:5

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		DATE 05.07.26		TITLE CROSSTUBE ASS'Y (206L HIGH AFT)	SCALE 1:10

# DETAIL A: CROSSTUBE CUFF



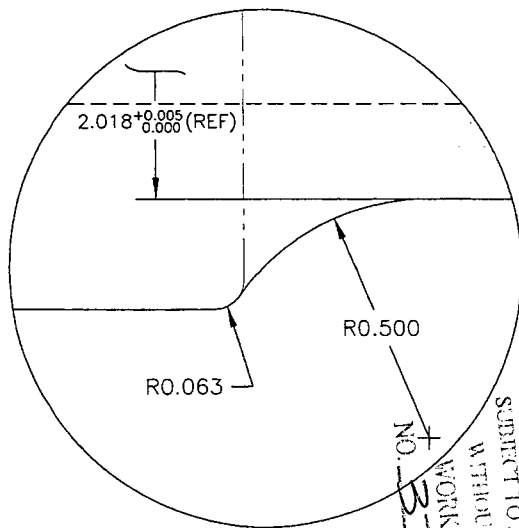
05.07.26 #

**UNDER REVIEW**

06.03.06 PH

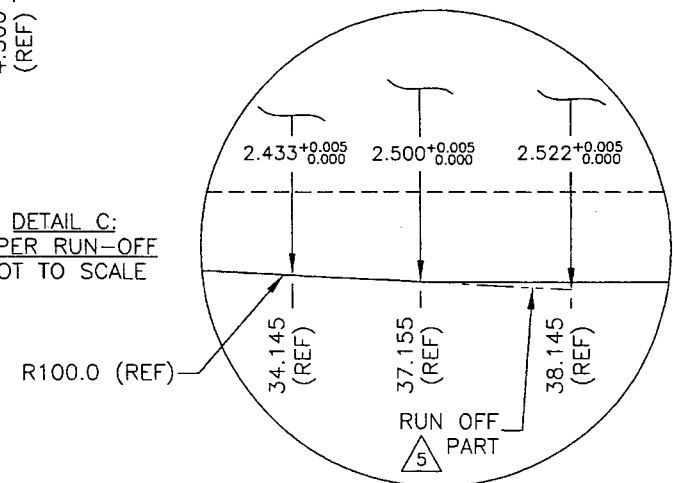
Re-draw detail if

PH 07.05.02



DETAIL B: CUFF  
TRANSITION  
SCALE 4:1

DETAIL C:  
TAPER RUN-OFF  
NOT TO SCALE



NO. 37986

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		DATE 05.07.26	TITLE CROSSTUBE ASS'Y (206L HIGH AFT)	SCALE 1:1	